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790001-2034**REMARKS**

Reconsideration and withdrawal of the rejections of this application and consideration and entry of this paper are respectfully requested in view of the herein remarks, which place the application in condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 1-30 are pending in this application. Claims 10, 22 and 25-30 are currently under prosecution. Claims 1-9, 11-17, 20 and 21 are withdrawn subject to the allowability of claims 10, 22 and 25-30. The applicants again request rejoinder of the claims should claims 10, 22 and 25-30 be held allowable. Claim 22 has been amended to address the Examiner's objection to the claim and correct a typographical error. Claim 22 also deleted the phrase "and which is formed on a surface of the second interlayer insulating film" to streamline the claim for appeal. No new matter has been added by this amendment.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112. The amendments of the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. THE CLAIM OBJECTIONS ARE OVERCOME

Claim 22 was objected to for using inconsistent terms, i.e. "film" in one instance and "layer" in another. The Examiner's confusion stems in part from a typographical error by the applicants. This phrase should correctly read as ---the first interlayer insulating layer---.

Reconsideration and withdrawal of the objections are requested.

III. THE 35 U.S.C. 102(b) REJECTION HAS BEEN OVERCOME

Claims 10, 22 and 25-30 were rejected as allegedly being anticipated by Bjorkman et al. (U.S. Patent 6,340,435 - "Bjorkman"). However, a claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference, *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *see also* MPEP 2131, and if the identical invention is shown in as complete detail as is contained in the...claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226,

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1236, 9 USPQ2d, 1913, 1920 (Fed. Cir. 1989), *see also* MPEP 2131. For the reasons set forth below, Bjorkman fails to anticipate the applicants' claims.

In attempting to correlate the elements of the applicants' claim 10 to the Bjorkman reference, the Examiner assumed that the claim language in lines 8-11 of claim 10 was anticipated by col. 7, lines 13-20 of Bjorkman which is reproduced in the table below:

| Claim 10, lines 8-11 | Bjorkman (col. 7, lines 13-20 - Fig. G and Fig. H) |
|---|---|
| "wherein a metal wiring of a metal material is embedded in a wiring groove formed in the interlayer insulating film, a width of the wiring groove in the first insulating film is smaller than that in the second insulating film at an interface between the first insulating film and the second insulating film" | <p>Referring to FIG. 1G, a suitable barrier layer 28 such as tantalum nitride is first deposited conformally in the horizontal and vertical interconnects 22, 26 to prevent metal migration into the surrounding silicon and/or dielectric materials.</p> <p>Fig. 1G</p> <p>Referring to FIG. 1H, the horizontal and vertical interconnects 22, 26 are then filled with a conductive material 30 such as aluminum, copper, tungsten or combinations thereof.</p> <p>Fig. 1H</p> |

The Examiner apparently considers that Bjorkman's dielectric layer 10 corresponds to the first insulating film of claim 10 and that part of Bjorkman's barrier metal 28 and conductive material 30, which is provided in the vertical interconnect 26 provided in the dielectric layer 10, corresponds to the metal wiring of the smaller width of claim 10. However, this reading of the Bjorkman reference is incorrect.

Specifically, the above-described parts of Bjorkman do not comprise a wiring but a via-contact connecting the lower side conductive material layer 16 and the upper side conductive

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material layer 30. Accordingly, Bjorkman does not teach this element of claim 10 and therefore, Bjorkman does not anticipate the claim 10 because all elements of the claimed invention are not taught. As claims 25, 27 and 29 are dependent upon claim 10, these claims are also not anticipated by Bjorkman.

Similarly, the Examiner assumes that lines 11-12 of claim 22 ("a second wiring embedded in a wiring groove which extend through the second and first insulating films.") to corresponds to col. 7, lines 13-20 of Bjorkman. Again, Bjorkman do not comprise a wiring but a via-contact connecting the lower side conductive material layer 16 and the upper side conductive material layer 30. Accordingly, the Bjorkman does not teach this element of claim 22 and therefore, Bjorkman does not anticipate the claim 22 because all elements of the claimed invention are not taught. As claims 26, 28 and 30 are dependent upon claim 22, these claims are also not anticipated by Bjorkman.

IV. THE 35 U.S.C. 103(a) REJECTION HAS BEEN OVERCOME

Claims 18, 19, 23 and 24 were rejected as allegedly being obvious over Bjorkman, *supra*, in view of Cronin et al. (U.S. Patent 6,590,290 - "Cronin"). [Note: The applicants' response below is based on the presumption that the Examiner's reiteration of his previous rejection intended to substitute Bjorkman for Kojima]

MPEP 2143.03 states in part that "To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art." *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)". As stated above in the applicants' response to the Examiner's anticipation rejection, the Bjorkman reference does NOT teach all of the limitations of claims 10, 22 and 25-30. Therefore, even if it were permissible to combine the Cronin reference with Bjorkman, all claim limitations would not be taught and therefore no *prima facie* case of obviousness has been established.

However, it is also impermissible to combine the Cronin reference with Bjorkman because the rejection of the claims by Cronin in view of Bjorkman lacks the requisite teaching, suggestion, or motivation to modify Cronin with Bjorkman in order to arrive at the applicants' claimed invention (see MPEP 2142 and 2143.01). The requirement for a teaching, suggestion or motivation to combine references has long been established and was elucidated in *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 56 USPQ2d 1459, (CAFC 2000) which stated:

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"The first requirement is that a showing of a suggestion, teaching, or motivation to combine the prior art references is an '*essential evidentiary component of an obviousness holding.*' *C.R. Bard, Inc. v. M3 Sys. Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This evidence may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. See *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996). *However, the suggestion more often comes from the teachings of the pertinent references.* See *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998). *This showing must be clear and particular, and broad conclusionary statements about the teaching of multiple references, standing alone, are not 'evidence.'* See *Dembiczak*, 175 F.3d at 1000, 50 USPQ2d at 1617." (emphasis added)

As such, MPEP 2143 states that "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, not in applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)" and MPEP 2143.01 establish that "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)". The Examiner's rationale for combining the reference appear to stem from the Examiner's own opinion, not from any evidence from either of the prior art references or from knowledge generally accepted in the art as is required when trying to establish a *prima facie* case of obviousness.

Moreover, the Examiner's reliance on routine experimentation and *In re Aller* (see also MPEP 2144.05, section II.A.) to provide motivation and the reasonable expectation of success necessary to combine Cronin with Bjorkman is misplaced. The very next section in MPEP 2144.05 (section II.B.) explicitly states that reliance on routine experimentation is permissible ONLY when the particular parameter is first recognized to be a results effective variable by the prior art. Again, it is only the Examiner's opinion, not any evidence from the Cronin or Bjorkman references, which suggests that the width range is a results effective variable.

Accordingly, it is submitted that when one considers the references as a whole, the combination of Bjorkman and Cronin does not teach all of the limitations of the applicants claimed invention nor is there any evidence of motivation to combine the cited references, nor the expectation of success in doing so. Reconsideration and withdrawal of the Section 103 rejections are requested.

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In the interest of adhering to the tenets of compact prosecution and obtaining good customer service (see page 7 of the FY-2004 Performance and Accountability Report), the applicants request that the teachings of MPEP 707.07(j), sections II and III be applied, especially with regard to the offer of suggestion for correction by the Examiner if the rejections are upheld.

In accordance with MPEP 713.01, section III, should any issue remain as an impediment to allowance, an interview with the Examiner and SPE are respectfully requested; and, the Examiner is additionally requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview ("An interview should normally be arranged for in advance, as by letter, facsimile, electronic mail, telegram or telephone call, in order to insure that the primary examiner and/or the examiner in charge of the application will be present in the office." *Id.*).

CONCLUSION

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution.

Respectfully submitted,
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